

Appendix C

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Medical Encyclopedia: Renovascular hypertension

URL of this page: <http://www.nlm.nih.gov/medlineplus/ency/article/000204.htm>

Alternative names

Renal hypertension; Hypertension - renovascular

Definition

Renovascular hypertension (high blood pressure) is caused by narrowing of the arteries that carry blood to the kidneys.

Causes, incidence, and risk factors

Blood pressure is determined by the amount of blood pumped by the heart and the size and condition of the arteries. Many other factors can affect blood pressure, including the volume of water in the body; salt content of the body; condition of the kidneys; nervous system, or blood vessels; and levels of various hormones in the body.

Renovascular hypertension is a form of secondary hypertension (hypertension caused by another condition in the body). It occurs in less than 5% of all people with hypertension. Symptoms usually begin before age 30 or after age 50, depending on the cause of the damage to the kidney blood vessels.

Narrowing of the renal artery reduces blood flow to the kidney. Stenosis is often related to atherosclerosis but may be caused by injury to the artery that causes scarring. Reduced blood flow to the kidney leads to an excessive release of the hormone renin, a potent hormone that increases blood pressure.

Symptoms

Headache is an occasional symptom. If your hypertension is severe, symptoms may include:

- tiredness
- confusion
- vision changes
- nausea and vomiting
- angina-like chest pain (crushing chest pain)
- congestive heart failure

Note: Usually, no symptoms are present.

Signs and tests

Elevated blood pressure measurements, repeated over time, confirm hypertension. Renovascular hypertension is often severely high and difficult to treat. Diastolic blood pressure (the "bottom" number, a reflection of the pressure in blood vessels when the heart is at rest) is often higher than 104 (normal is less than 80 to 90).

Renovascular hypertension is suspected when:

- The onset of hypertension occurs at an advanced age
- Stable, controlled hypertension suddenly becomes more difficult to treat
- Hypertension requires multiple medications for its satisfactory control

There may be signs of complications. Bruits ("whooshing" noises over an artery) may be heard with a stethoscope over the abdomen or flank areas.

Atherosclerosis or renal stenosis may show on:

- renal scan testing that includes administration of an angiotensin-converting enzyme (ACE) inhibitor such as captopril
- renal angiography (injection of dye into the renal artery so that a narrowing of the artery can be seen on an x-ray)
- intravenous pyelogram that shows slow uptake in one or both kidneys
- renal ultrasound with Doppler evaluation of the renal arteries

This disease may also alter the level of renin if that is tested.

Treatment

The goal of treatment is to control your high blood pressure.

Medications that may be used in an attempt to control blood pressure include diuretics, beta blockers, calcium channel blockers, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers (ARBs) and alpha blockers.

Diazoxide or nitroprusside may be given in the hospital if symptoms are acute. Response to medications is highly individual. Blood pressure should be monitored frequently. Medication and dosage may need frequent adjustment.

Surgical reconstruction of a damaged artery may be performed. Balloon angioplasty or stenting of the damaged artery may be used instead of open reconstruction.

Lifestyle changes may be recommended, including weight loss, exercise, and dietary adjustments. Stop smoking. Stop drinking alcohol. These habits add to the effects of hypertension in causing complications.

Expectations (prognosis)

Renovascular hypertension may be very difficult to control. It often responds well to surgical treatment if there are no other surgical risks. Older people or high-risk individuals may be managed, with variable results, with medication. The disorder requires lifelong monitoring, and treatment may require frequent adjustments.

Complications

- early death
- hypertensive heart disease
- heart attack
- congestive heart failure
- blood vessel damage
- kidney damage
- kidney failure
- stroke

- loss of vision

Calling your health care provider

Call for an appointment with your health care provider if hypertension is suspected.

Call your health care provider if renovascular hypertension has been diagnosed and symptoms occur, worsen, or do not improve with treatment. Also call if new symptoms develop.

Prevention

Preventing atherosclerosis may prevent the development of renal artery stenosis.

Lifestyle changes may reduce the risk of hypertension. Lose weight if you are overweight. Excess weight adds to efforts of the heart. Exercise to improve cardiac fitness (check with the health care provider before beginning a rigorous exercise program).

Dietary adjustments may help to control hypertension. Modify your sodium intake. (Sodium intake may have little effect in people without hypertension but may have a profound effect in those with hypertension). Salt, MSG, and baking soda all contain sodium.

Update Date: 6/3/2003

Updated by: A.D.A.M. Editorial. Previously Reviewed by Andrew Koren, M.D., Department of Nephrology, NYU-Mount Sinai Medical Center, New York, NY. Review provided by VeriMed Healthcare Network (11/30/01).



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